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PTOL-413A (03-03)
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U.S. Petent and Trademerk Office: U.S. DEPARTMENT OF COMMERCE

Applicant Initiated Interview Request Form						
Application No.: 10. Examiner: 7an A	/ <u>798,378</u> First 1 <u>67</u>	Named Applicar Art Unit:	nt: <u>Ana cler70</u> 193 Status of App	lication: <u>Pen</u>	ding	
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(3)		(4)	<u> </u>			
Proposed Date of I	nterview: 3,	<u>//<i>D</i></u> Prop	osed Time: <i> 2</i>	(AM/PM)		
Type of Interview F (1) [√] Telephonic	Requested: (2)] Perso	onal (3) [] Video Conference			
Exhibit To Be Show	yn or Demonstr	ated: [] YES	[4] NO			
If yes, provide brief	l description:			· 	-	
Issues To Be Discussed						
<u>-</u> .		133063 10	De Discusseu			
Issues (Rej., Obj., etc)	Claims/ Fig. #s	Prior Art	Discussed	Agreed	Not Agreed	
(1) / <i>v</i> /			[]	[]	[]	
(2)			[]	[]	[]	
(3)			[]	[]	[]	
(4)			[]	[]	[]	
[] Continuation Sh	eet Attached					
Brief Description o	f Arguments to	be Presented:				
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An interview was c	onducted on the	e above-identifie	d application on		• • • • • • • • • • • • • • • • • • •	
§ 713.01). This application will	not be delayed fr	om issue because	tted to the examiner in ad of applicant's failure to s	ubmit a written	record of this	
as soon as possible.	A	vised to file a state	ment of the substance of t	inis interview (3		
(Applicant/Applicant's Representative Signature)			(Examiner/SPE Sign	(Examiner/SPE Signature)		

This collection of information is required by 37 CFR 1.133. The information is required to obtain or retain a bunefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 21 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patont and Trademark Office, U.S. Department of Commerce, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, Washington, DC 20231.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Appl. No. : 10/798,378

Applicant: Cheri A. Anaclerio

Filed : March 12, 2004

Title : SELECTIVE FILTER HAVING LINEAR PHASE

TC/A.U. : 2193

Examiner: Tan V. Mai

Docket No. : 000375-078

Customer No. : 038598

Mail Stop RCE

Commissioner of Patents P.O. Box 1450 Alexandria, Virginia 22313-1450

AMENDMENT TO ACCOMPANY REQUEST FOR CONTINUED EXAMINATION UNDER 37 C.F.R. § 1.114

IKATT

Sir:

In response to the December 13, 2007 Final Office Action, please amend the aboveidentified application as follows:

Amendments to the Claims begin on page 2 of this response.

Remarks/Arguments begin on page 6 of this response.

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

(currently amended): A computer-implemented method of designing a customized filter 1. having nearly ideal responses in both gain and phase or gain and time, by utilizing poles derived from known-standard-sets of poles wherein-the known-standard sets-of poles being chosen to define a frequency-domain and a time domain by-proportionally-migrating at least one-set-of complex poles form a first location to a second location comprising the steps of:

choosing a first set of complex frequency poles from said a first location and said a second set of complex frequency poles from a second location when a desired passband phase of the filter is linear while preserving the desired magnitude response; and

normalizing said first and second sets of complex frequency poles from said first location and said second location to obtain a new proportional complex pole constellation; by:

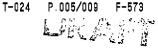
determining weighting factors by varying the weighting factors until a computed stopband gain and a passband phase both meet system requirements of nearly ideal responses,

multiplying said first and second sets of complex frequency poles by the predetermined weighting factors to calculate the new proportional complex pole constellation, a hybrid first-constellation and a hybrid second constellation; and

renormalizing the hybrid-first-constellation and the hybrid second-constellation-so-as to obtain a proportionally migrated-complex pole constellation to said second location wherein the new proportional complex pole constellation defines the customized filter, the customized filter having nearly ideal responses in both gain and phase or gain and time.

thereby producing the customized-filter having nearly ideal responses in both the frequency domain and the time-domainAmendment dated March 13, 2007

Reply to Final Office Action of December 13, 2007



The method of claim 1, wherein said step of choosing said set of complex 2. frequency poles from said first location and said second location, comprises choosing a pair of normalized set of poles

$$C_n = -c_1' + jc_1"$$

and

$$Bn = -b_1' + ib_1''$$

when C_n and B_n comprises a first and second normalized set of poles c_n and b_n , and wherein the step of multiplying comprises multiplying the end-point number of poles by x and y, where x and y are weighting numbers,

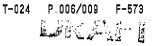
and where the step of normalizing comprises dividing the sum of the weighted poles by x and y according to the equation

$$x(-c_1' + jc_1") + y(b_1 + jb_1")$$

 $x + y$

so as to migrate, wherein if x > y, then the new pole being closer to the first location; and if x < y, then the new pole being closer to the second location.

- The method of claim 2, wherein C_n comprises a Chebychev constellation 3. (original): of complex frequency poles and Bn comprises a Bessel constellation of complex frequency poles, and the first location comprises a Chebychev location and the second location comprises a Bessel location.
- The method of claim 1, wherein an arrangement of poles being calculated (original): 4. having graded characteristics between two of the extremes which is controlled by a choice of x and y.
- The method of claim 1, wherein the constellation being closer to the 5. (original): imaginary axis being chosen to be anywhere between a Butterworth set and a high-ripple Chebychev set; and the left-most set of poles being a synchronously tuned or a Gaussian constellation or other linear phase or low time transient constellation.



- The method of claim 1, wherein said hybrid model achieves 60 dB at (original): 6. about 2.2 times the passband edge.
- The method of claim 1, wherein the phase response of the hybrid filter 7. (original): being more linear than that of the Chebychev filter, and having a phase deviation less than the phase deviation of the Chebycheb.
- (cancelled). 8.
- The method of claim 7, wherein the method includes the steps of: (original): 9. obtaining a favorable response combination of gain and phase or gain and time response, and using the normalized pole locations to design a vast array of filters.
- The method of claim 8, further comprising the steps of: 10. (original): using simple transformations to frequency scale a low pass filter to any bandwith, and using other transformations to convert to bandpass filters.
- The method of claim 8, further comprising the steps of: 11. (original): transforming poles to bandpass clusters; and using direct synthesis computer programs.
- (currently amended): A computer-implemented method of designing an nth order filter 12. by initially selecting known values for each element of said filter, said known values being selected from a relatively high selectivity type filter value as a first extreme value and a linear phase or time domain filter value as a second extreme value, said first extreme value being defined as a first set of numbers forming a first set of poles on a complex frequency plane, and said second extreme value being defined as a second set of numbers forming a second set of poles on said complex frequency plane, and a first constellation defined by a plurality of said first set of poles and a second constellation being defined by a plurality of said second set of poles, said method comprising the steps of:

choosing at least one first set of complex frequency poles in a complex frequency plane to form a first constellation based on the extreme characteristics of the filter, and at least one second set of complex frequency poles in the complex frequency plane to form a second constellation based on the extreme characteristics of the filter so that a desired passband phase of the filter is linear while preserving the desired magnitude; and

normalizing a set the first and second sets of complex frequency poles to obtain a proportional complex pole constellation; by:

determining weighting factors by varying the weighting factors until a computed stopband gain and a passband phase both meet system requirements of nearly ideal responses.

multiplying the proportional complex pole constellation the first and second sets of complex frequency poles by the weighting factors to calculate the proportional complex pole constellation; and

renormalizing a resulting complex pole constellation to obtain a hybrid arrangement of pole constellations having-graded characteristics between the first-and second constellations, wherein the proportional complex pole constellation defines the nth order filter, the nth order filter having nearly ideal responses in both gain and phase or gain and time.

thereby producing the oustomized filter having nearly ideal responses in both the frequency domain and the time domain.

- 13. (original): The method of claim 12 wherein the relatively high selectivity filter value is selected from a Chebychev filter value.
- 14. (original): The method of claim 12 wherein the linear phase or time domain filter value is selected from a Bessel filter value.
- 15. (original): The method of claim 12 wherein the relatively high selectivity filter value is selected from a Chebychev filter value and wherein the linear phase or time domain filter value is selected from a Bessel filter value.

Application No. 10/798,378 Amendment dated March 13, 2007 Reply to Final Office Action of December 13, 2007



REMARKS/ARGUMENTS

Claims 1-15 are pending. By this amendment, claims 1 and 12 are amended and claim 8 is cancelled. Support for these claim amendments can be found at paragraphs [0042-43] and [0053] of the specification. No new matter is introduced. Reconsideration and prompt allowance of the claims is respectfully requested.

35 U.S.C. § 112 Rejections

Claims 1-15 are rejected under 35 U.S.C. § 112. Claims 1 and 12 have been amended to remove the objected phrase. Withdrawal of the rejection is respectfully requested.

35 U.S.C. § 101 Rejections

Claims 1-15 are rejected under 35 U.S.C. § 101. This rejection is respectfully traversed.

Claims 1 and 12 are amended to recite a computer-implemented method for designing a customized filter having nearly ideal responses in both the frequency domain and the time The computer-implemented method chooses a first and second sets of complex domain. frequency poles, and normalizes the first and second sets of complex frequency poles to obtain a new proportional complex pole constellation by: determining weighting factors by varying the weighting factors until a computed stopband gain and a passband phase both meet system requirements of nearly ideal responses, and multiplying said first and second sets of complex frequency poles by the weighting factors to calculate the new proportional complex pole constellation. The new proportional complex pole constellation defines the customized filter that has nearly ideal responses in both gain and phase or gain and time, which filter is a concrete, useful, and tangible result. See State Street Bank v. Signature Financial Group, Inc., 47 U.S.P.Q.2d 1596, 1601 (Fed. Cir. 1998) (holding that a price for a financial product is a concrete, useful, and tangible result). Therefore, claims 1 and 12 (and their respective dependent claims) contain statutory subject matter under 35 U.S.C. § 101. Withdrawal of the rejection of claims 1-15 under 35 U.S.C. §101 is respectfully requested.

In view of the above remarks, Applicant respectfully submits that the application is in condition for allowance. Prompt examination and allowance are respectfully requested.

Mar-05-08 03:29pm

Application No. 10/798,378

From-ANDREWS KURTH LLP

Amendment dated March 13, 2007 Reply to Final Office Action of December 13, 2007 T-024 P.009/009 F-573

Should the Examiner believe that anything further is desired in order to place the application in even better condition for allowance, the Examiner is invited to contact Applicant's undersigned representative at the telephone number listed below.

202-662-2739

Tel. (202) 662-2736 Fax (202) 662-2739

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